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LISTS OF SPECIES

Continental, insular and coastal marine reptiles from the municipality of Vitória, state of Espírito Santo, southeastern Brazil

Thiago Silva-Soares [1*], Rodrigo Barbosa Ferreira [2,3], Rodrigo de Oliveira Lula Salles [1] and Carlos Frederico Duarte Rocha [4]

1 Universidade Federal do Rio de Janeiro, Museu Nacional, Departamento de Vertebrados. Quinta da Boa Vista. CEP 20940-040. Rio de Janeiro, RJ, Brasil.
2 Utah State University, Department of Wildland Resources and Ecology Center. 5305 Old Main Hill. Logan, 84322–5230, Utah, USA.
3 Museu de Biologia Mello Leitão. Avenida José Ruschi 4, Centro. CEP 29650-000. Santa Teresa, ES, Brasil.
4 Universidade do Estado do Rio de Janeiro, Departamento de Ecologia. Rua São Francisco Xavier 524, Maracanã. CEP 20550-013. Rio de Janeiro, RJ, Brasil.
* Corresponding author. E-mail: *thiagossoares@ufrj.br*

ABSTRACT: We present a list of the reptiles of the municipality of Vitória, Espírito Santo, Brazil, compiled through primary data (specimens gathered by the authors) and secondary data (specimens housed at museums and records available in literature). We record 51 reptile species distributed by the orders Crocodylia (one species), Testudines (nine species), and Squamata (forty-one species), subdivided in amphisbaenians (three species), lizards (eleven species), and snakes (twenty-seven species). We recorded six species that are listed as threatened in the Brazilian List of Endangered Species, as the terrestrial lizard *Cnemidophorus nativo* and the marine turtles *Lepidochelys olivacea* and *Dermochelys coriacea*.

INTRODUCTION

Reptiles constitute a group of animals with high ecological importance, since they are represented in several trophic levels, including higher ones such as crocodilians and certain snakes (Bertoluci *et al.* 2009). Some lizards and chelonians maintain ecological balance controlling populations of invertebrates, other reptiles, fish, amphibians, birds, and mammals through predation (Jared *et al.* 1998; Rocha and Vrcibradic 1998; Scartozzoni and Molina 2004; Pombal 2007; Esbérard and Vrcibradic 2007). With 721 presently described species occurring in Brazil (Bérnils 2010), reptiles can be conspicuously distinguished in nearly all terrestrial communities (Dixo and Verdade 2006), inhabiting every Brazilian Biome (Rodrigues 2005).

Espírito Santo, like other Brazilian states, has experienced significant degradation and reduction of its Atlantic Rainforest coverage due to the intense process of deforestation that has been carried out within the last five centuries (Rocha *et al.* 2003). Currently, remaining forests contain around 8% of the native vegetation cover of the state, which remain restricted to many small and sparse fragments (IPEMA 2004). Degradation and deforestation of biomes such as Atlantic Rainforest are some of the main causes of the reduction of biological diversity of reptiles, including those presently known to be at risk (Rodrigues 2005). The reduction of population size is a limitation to maintain viable populations, due to depletion of the local gene pool (Lema 2002).

Gaining knowledge of the species composition for each taxon over a particular geographic region is relevant as a way to monitor eventual losses over time due to species extinction. Most of the checklists available for species in the Brazilian Atlantic Rainforest, particularly on reptiles, regard specific localities where some studies were developed. There are relatively few examples of checklists from larger regions such as municipalities or states. Examples of the latter include checklists of the municipalities of São Paulo (Marques *et al*. 2009), Duque de Caxias (Salles and Silva-Soares 2010), and Viçosa (Costa *et al*. 2009; 2010). There are also checklists of reptiles provided by Rocha *et al.* (2004) for the state of Rio de Janeiro and for São Paulo compiled by Araújo *et al*. (2009).

For Espírito Santo, conversely, there is still a lack of species lists for reptiles. There are some historic works, such as those by Maximilian zu Wied-Neuwied. This German prince was in Brazil in the early of 19th century and studied indigenous populations, flora, and fauna (Wied-Neuwied 1820; 1824). At Espírito Santo, the naturalist stayed in several localities, including Vitória, and collected several specimens for his personal natural history collection, describing some reptile species from the region, as *Chironius bicarinatus* (Wied, 1820) and *Liophis poecilogyrus* (Wied, 1825).

Furthermore, there are some important works on reptiles such as the research of Augusto Ruschi that provided a list of reptiles from the state of Espírito Santo (Ruschi 1966) and from Sooretama, in the municipality of Linhares (Ruschi 1980), and Alphonse Richard Hoge, which describes the pit viper *Lachesis muta noctivaga* (Hoge 1966) from the locality of Vitória. There are also recent works addressing specific species or entire reptile populations of Espírito Santo, like Teixeira (2001), Zamprogno *et al*. (2001), Almeida *et al.* (2007), Peloso *et al*. (2008), and Tonini *et al.* (2010).

In this study we present a reptile checklist of the municipality of Vitória, Espírito Santo. We aimed to identify the composition of reptile species, occurrence of native

and exotic species, and (among the former) endemic and endangered species for the municipality.

Materials and Methods

Study region

The survey encompassed the region of municipality of Vitória (20°19'09" S, 40°20'50" W), state of Espírito Santo, southeastern Brazil. The climate of the region is characterized as *Aw Tropical* in the Köppen-Geiger Climate system (1936) with warm and wet summers and dry winters. Mean annual temperature in the region averages 23.5° C and mean annual rainfall averages 1,239 mm. The region has a particular dynamic determined by Atlantic tropical hot and wet air masses, and the dry and cold Atlantic Polar air masses in winter (SEMMAM *et al.* 2002). In terms of topography, the municipality varies from sea level to about 310 m a.s.l. The municipality area is *ca.* 93.38 km^2, including the main Vitória Island portion and an archipelago of 34 islands. Formerly 50 islands composed the archipelago, however in more recent decades areas among some of the islands and the main island have been successively embanked and settled by humans, resulting in the incorporation of some to Vitória Island area (SEMMAM *et al.* 2002).

The state is included in the *Domínio morfoclimático da Mata Atlântica* ecoregion (Ab'Saber 1977), which is part of the Atlantic Rainforest Biome. *Domínio morfoclimático da Mata Atlântica* ecoregion consists of associated habitats of mangroves and *restingas* (coastal sand-dune habitats). There are 63 protected areas in Vitória (three Environmental Protection Areas, 31 Areas of Permanent Preservation, five Special Green Areas, one Municipal Ecological Station, one State Park, 14 Municipal Parks, and eight Municipal Ecological Reserves until 2008) and most of the wildlife is presently protected by some of these areas, which are open for visitors. The municipality has a total of 1,479 m^2 of green area, which provides an average area of approximately 91 m^2 of green area per inhabitant (SEMMAM 2002), about six times greater than that recommended by the World Health Organization (WHO) for urban centers (16 m^2 per inhabitant). The *Parque Estadual da Fonte Grande* (PEFG; Figure 1A-B) with 218 ha harbors a rich biodiversity and constitutes an important Conservation Unit, being one of the few Atlantic Forest remnants found in the central part of Vitória. The local fauna and flora are under intense pressure from disturbances due to human occupation. The *Reserva Ecológica Municipal Restinga de Camburi* (REMRC, Figure 2A-B), located in the neighborhood of the local airport, spreads over an area of 125,440 m^2, protecting one of the few *restinga* remnants in the municipality's mainland portion. The area formerly covered *ca.* 200 ha of vegetation in different succession stages, and is the last remnant of *restinga* environment in Vitória (Pereira and Assis 2000).

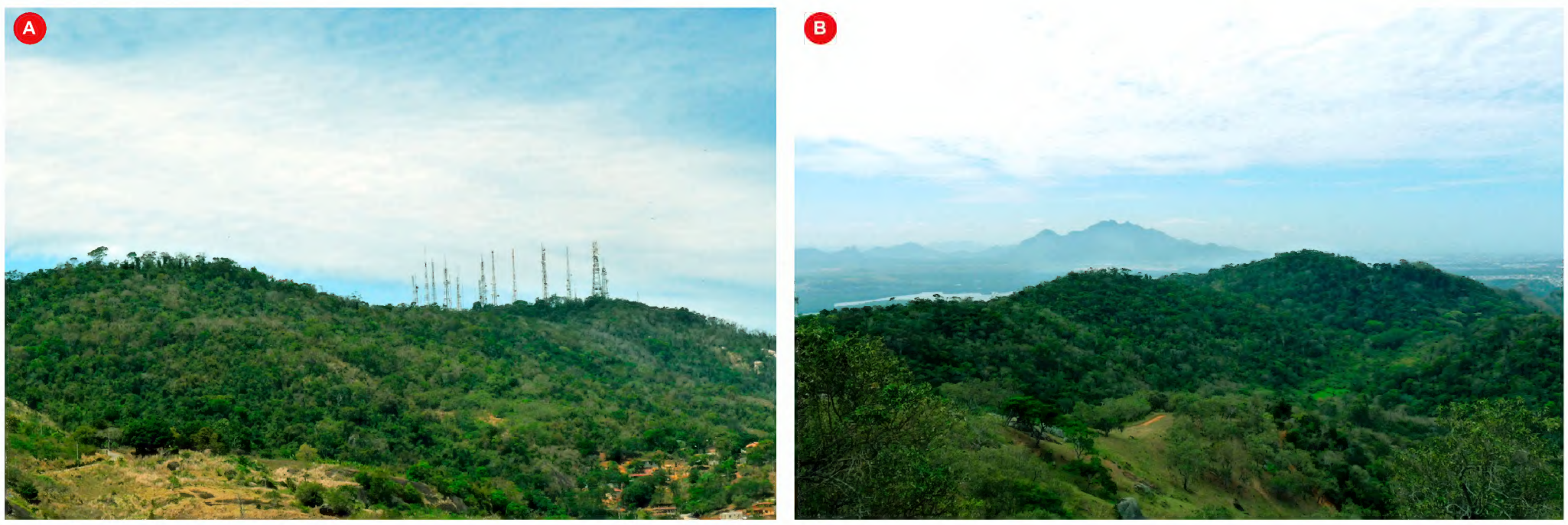

Figure 1. Panoramic images from the Parque Estadual da Fonte Grande, municipality of Vitória. Photograph by TSS.

Figure 2. Panoramic images of the Reserva Ecológica Municipal Restinga de Camburi. Photograph by TSS.

Sampling

To obtain records for the study we included primary and secondary data. Primary data was gathered from fieldwork activities for two years, between 2004 and 2006. Most of the sampling effort was concentrated in larger vegetation remnants of the Atlantic Rainforest biome in the municipality (*Parque Estadual da Fonte Grande* and *Campus Goiabeiras* of the *Universidade Federal do Espírito Santo*). Voucher specimens are housed at the Brazilian collections: MBML – *Museu de Biologia Professor Mello-Leitão*, Santa Teresa, Espírito Santo; MZUFV – *Museu de Zoologia João Moojen*, Viçosa, Minas Gerais; and MCNR – *Museu de Ciências Naturais*, Belo Horizonte, Minas Gerais.

Secondary data included available records from literature and specimens housed in the following Brazilian collections: MBML; MNRJ – *Museu Nacional*, Rio de Janeiro; ZUFRJ – *Coleção de Répteis da Universidade Federal do Rio de Janeiro*, Rio de Janeiro; and IBSP – *Coleção Herpetológica Alphonse Richard Hoge*, *Instituto Butantan*, São Paulo. The specimens from IBSP were accessed before the fire incident that destroyed the great majority of the collection of arachnids and reptiles, burning over 82 thousand specimens (Francisco Franco, pers. com.) of reptiles on May 15th, 2010. Moreover, no information from online databases was used.

Results and Discussion

We recorded a total of 51 reptile species (Table 1) belonging to three different orders: Crocodylia (one species), Testudines, (nine spp.), and Squamata, with 41 species, including Amphisbaenia (three species), Lacertilia (11 species), and Serpentes (27 species). *Amphisbaena nigricauda* Gans, 1966, and the unisexual teiid lizard *Cnemidophorus nativo* Rocha, Bergallo and Peccinini-Seale, 1997 are endemic to coastal sand dune habitats (*restingas*), with the latter included as Vulnerable in the Brazilian List of Endangered Species (MMA 2003; Almeida *et al*. 2007). We also registered the occurrence of the introduced exotic invasive gecko lizard *Hemidactylus mabouia* (Moreau de Jonnès, 1818), which was recorded living in natural environments (on bromeliads and tree trunks) of *restinga* habitats of Presidente Kennedy (Neves), São Mateus, and Linhares (Nativo fields) (CFDR, pers. obs.), all municipalities of Espírito Santo. Some of the species are presented in Figure 3.

Our study presents a list for the reptile species living in the region of the municipality of Vitória. Among the parks of Vitória it is important to note the high reptile diversity found at the *Parque Estadual da Fonte Grande* and the *Reserva Ecológica Municipal Restinga de Camburi* (Figure 4), two important protected areas which have been under constant and intense human impact, reptile diversity is highly encountered.

The alligatorid crocodilian *Caiman latirostris* (Figure 5) has been found in Vitória within a lake of *Parque Botânico da Vale* (PBV), a protected area of 30 ha. At PBV, an extensive program of reforestation has been done since 2004, promoting restoring high quality habitat for native fauna. The occurrence of this caiman in Vitória is not surprising, since the municipality contains suitable habitats to maintain this species. Furthermore, this species has an extensive geographic distribution in Brazil, occurring from Rio Grande do Norte southwards to Rio Grande do Sul, as well as in neighboring countries such as Argentina, Bolivia, Paraguay, and Uruguay (Verdade and Piña 2007). Although formerly included in the Brazilian List of Endangered Species, *Caiman latirostris* has not been considered threatened with extinction since 2003 (MMA 2003), and currently the species is legally and commercially exploited in Brazil and Argentina (Verdade and Piña 2007).

Regarding snakes, we recorded 27 species occurring in the region of Vitória (one of them presumably locally extinct – *Lachesis muta*). As frequently found for other snake communities from the Atlantic Rainforest (Rocha *et al.* 2008; Rocha and Van-Sluys 2006; Pontes and Rocha 2008; Pontes *et al.* 2008; 2009; Salles *et al.* 2010, Salles and Silva-Soares 2010), as well as for other Brazilian Biomes as the Amazonian forest (Martins and Oliveira 1998), the Cerrado (Sawaya *et al.* 2008), and the Pantanal (Dr Christine Strüssmann, pers. com.), most species belong to Colubridae (N=6) and Dipsadidae (N=11). The second richest family was Viperidae (N=5), followed by Boidae (N=2), and Elapidae, Leptotyphlopidae, and Typhlopidae, with one species each.

The Bushmaster, *Lachesis muta*, is the only snake occurring in Vitória that is listed as Vulnerable from Espírito Santo (Almeida *et al.* 2007). Apparently locally extinct, *L. muta* is known to require large and well-preserved forested areas (Rocha *et al.* 2000). Although there are currently no such large and extensive areas to maintain a population of that snake species in the Vitória region (a reason also for the disappearing of the species in most Brazilian Atlantic Rainforest habitats), there are confirmed records of *L. muta* within the area, and the holotype of the no longer valid subspecies *L. muta noctivaga* (Hoge 1966), housed at the *Instituto Butantan* (IBSP 17957; specimen from 1957), is from Vitória.

The records of *Chironius foveatus*, *C. exoletus*, *Philodryas olfersii*, and *Leptotyphlops salgueiroi* (one voucher specimen each) in the PEFG are the only known specimens of these snake species in Vitória. The records of those species were obtained from the study on road mortality of snakes at PEFG (RBF and TSS, in press). The PEFG is also inhabited by nine other snake species, indicating the importance of conservation within this Atlantic Rainforest remnant, which is completely surrounded by disturbed environments (human residences and small farms).

Regarding lizards, most species encountered in Vitória are widely distributed along the Brazilian coast, and are not listed as threatened with extinction, except for *Cnemidophorus nativo* (MMA 2003). This lizard (Figure 3J) is one of the five presently known species of Brazilian *Cnemidophorus* lizards to occur in coastal environments; others include: *C. abaetensis* Dias, Rocha and Vrcibradic, 2002; *C. lacertoides* Duméril and Bibron, 1839; *C. littoralis* Rocha, Araújo, Vrcibradic and Costa, 2000; *C. ocellifer* (Spix, 1825); and *C. nativo* Rocha, Bergallo and Peccinini-Seale, 1997. This parthenogenetic lizard, which was described from a *restinga* in the municipality of Linhares (Rocha *et al.* 1997), is characteristic of coastal sand-dune habitats at the Serra do Mar corridor (Rocha *et al.* 2005), and has a relatively constrained distribution, occurring from the southern *restingas* of the state of Bahia to

southeast of Espírito Santo (Rocha *et al.* 1999; Vrcibradic *et al.* 2002; Dias and Rocha 2005; Peloso *et al.* 2008). *Cnemidophorus nativo* is among the most well known species of the genus, with some ecological data available on thermal biology (Menezes *et al.* 2000), reproduction (Menezes *et al.* 2004), diet (Menezes *et al.* 2008), activity (Peloso *et al.* 2008), and habitat use (Dias and Rocha 2005; Peloso *et al.* 2008). This lizard is presently included in the Brazilian List of Endangered Species (MMA 2003) and in the list of reptiles threatened with extinction in the state of Espírito Santo (Almeida *et al.* 2007), due to the intensive process of destruction of its habitat. This is the first report

Figure 3. Some reptiles from the municipality of Vitória: A – *Amphisbaenia alba*; B – *Oxybelis aeneus*; C – *Bothropoides jararaca*; D - *Pseudoboa nigra*; E – *Micrurus corallinus*; F – *Boa constrictor*; G – *Dipsas albifrons*; H – *Oxyrhopus petola*; I – *Gymnodactylus darwinii*; J – *Cnemidophorus nativo*; K – *Polychrus marmoratus*; L - *Trachemys scripta elegans*; M – *Hemidactylus mabouia*. Photography credits: 3B, F Thiago M. Castro; Giuliano Martins 3G; Leonardo Merçon 3I, K, M; TSS 3A, C, D, E, H, J, L.

of the threatened lizard *C. nativo* for Vitória.

The non-native Gecko, *Hemidactylus mabouia* (Figure 3M), occurs mostly in urban environments in Brazil (Vanzolini 1968; 1978; Anjos and Rocha 2008). In the last decades, the species started being recorded as invasive in natural environments within different Brazilian states (Rocha *et al*. 2011). It has been recorded that this invasive species coexists in natural habitats with the native lizard *Gymnodactylus darwinii* (Ferreira and Mendes 2010). It is likely that competition for food source might be occurring between these lizards in Vitória, as also reported by Zamprogno and Teixeira (1998). There are also records of *H. mabouia* in other natural areas of Espírito Santo, such as the forest at *restinga* habitats in the municipalities of Presidente Kennedy (Araújo 1994), Linhares (CFDR, pers. obs.), and São Mateus (Teixeira 2001).

Regarding amphisbaenians, the species *Amphisbaena alba* and *Amphisbaena microcephala* were found at the *Reserva Ecológica Municipal Restinga de Camburi*, and have large distribution in Brazil. In this same protected area it was recorded a single specimen of *Amphisbaena nigricauda*, species that is endemic to *restinga* environments (Rocha *et al.* 2005). The species distribution includes the state of Bahia, at *restingas* of Mucuri, Trancoso, and Prado municipalities, southward to Espírito Santo (Linhares). Although in Espírito Santo this amphisbaenian has not been considered threatened with extinction, in the neighbor state of Bahia it was defined as a potential candidate to lists of threatened species (Dias and Rocha 2005).

In terms of chelonians, there are five marine species belonging to the families Cheloniidae and Dermochelyidae and one freshwater species, *Acanthochelys radiolata*, occurring naturally in the municipality. Also, we recorded the tortoises *Chelonoidis carbonaria* and *C. denticulata*, and the North-American invasive Red-eared Slider, *Trachemys scripta elegans*, living within some parks in urban areas of Vitória. All marine species are considered threatened of extinction according to the International Union for Conservation of Nature (IUCN), considered threatened by illegal trade of wild fauna, according to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Brazilian and the Espírito Santo lists of threatened species (MMA 2003; Almeida *et al.* 2007; CITES 2010; IUCN 2010).

The occurrence of *A. radiolata* at Vitória is based on a carapace found at the surroundings of *Parque Estadual da Fonte Grande*. Although the species has been listed as Near Threatened in IUCN, it is also said that it needs updating. The North American Red-eared Slider, *T. scripta elegans*, was observed in a lake at the *Campus Goiabeiras* of the *Universidade Federal do Espírito Santo* (Ferreira and Mendes 2010) and can also be currently found at the *Parque Pedra da Cebola*. Tortoises *Chelonoidis denticulata* and *Chelonoidis carbonaria* can be found there as well (Figure 6). This park is known for receiving donated pets. The species *C. carbonaria* has a large distribution range, occurring naturally in Amazonian formations, Caatinga, and Cerrado, and a portion of Atlantic Rainforest in southern Bahia (Iverson 1992), but there is not a report of the species within a natural environment in the state. Despite its large distribution (mainly in the Amazonian domain, with some records in isolated areas in Cerrado, Caatinga, and Atlantic Rainforest), there is no previous record of *C. denticulata* in Vitória, but it has been reported within the political boundaries of the state of Espírito Santo, in the Rio Doce region (Iverson 1992), without further locality specifications.

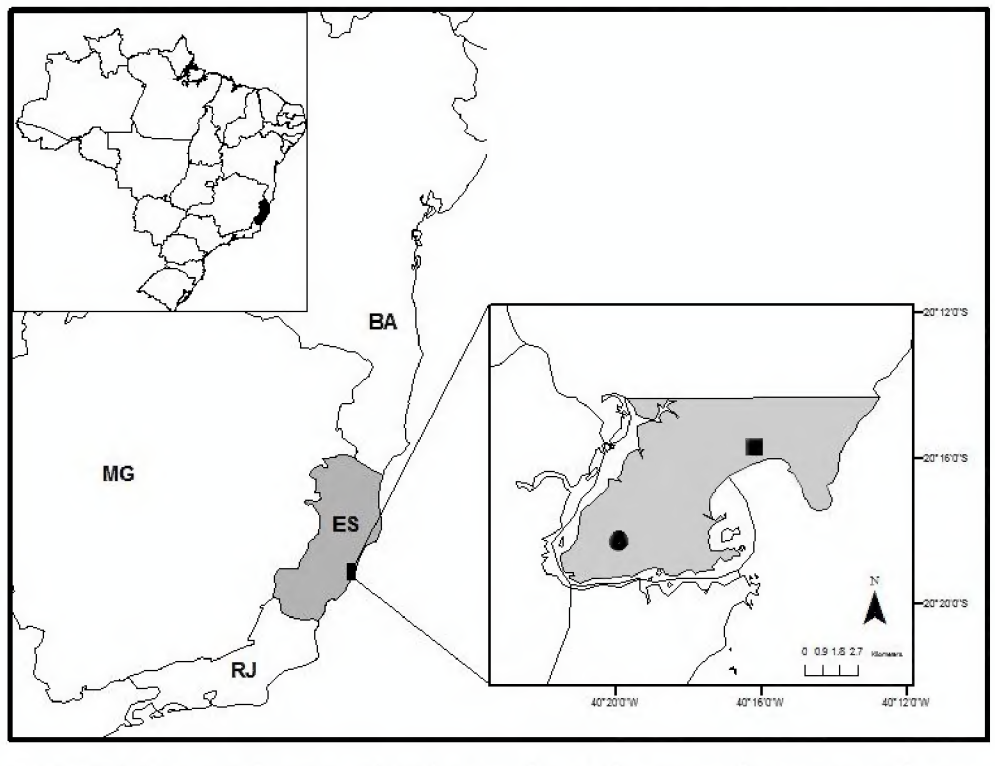

FIGURE 4. Map of the city of Vitória with emphasis on the protected areas of Reserva Ecológica Municipal Restinga de Camburi (square) and Parque Estadual da Fonte Grande (circle), state of Espírito Santo.

FIGURE 5. Specimen of *Caiman latirostris* at Parque Botânico da Vale. Photograph by Pedro R. Paz.

FIGURE 6. Specimens of *Chelonoidis denticulata* and *C. carbonaria* at Parque Pedra da Cebola. Photograph by TSS.

In spite of the enormous anthropogenic disturbance in Espírito Santo, the municipality still houses a diverse range of reptiles including some endangered species, such as the lizard *Cnemidophorus nativo*, five chelonians, and other species that are no longer listed as threatened, such as *Caiman latirostris*. *Hemidactylus mabouia* is a non-native species that is commonly found throughout the municipality. *Tropidurus torquatus*, popularly known as *calango,* also inhabits buildings, living among the citizens; and *Tupinambis merianae* (Figure 7), a large lizard harvested by humans, has been found in the middle of Vitória. Moreover, it is alarming that we still detect increasing presence of the chelonians *C. carbonaria*, *C. denticulata* and, *T. scripta elegans*, species that are not native from the region, living in some protected areas of Vitória, mainly as result of a release of unwanted pets.

Figure 7. Specimen of *Tupinambis merianae* at the Campus Goiabeiras of the Universidade Federal do Espírito Santo. Photograph by RBF.

Although Vitória demonstrates a considerable degree of conservation, the fact of earlier records of species that are no longer found in Vitória (*e.g. Lachesis muta*) probably corroborate that the deforestation might have locally decimated some reptile populations.

Report of local extinction demonstrates the negative impact of urbanization on native fauna, which is more pronounced on species that requires a wide territory. To maintain a genetic viable population with these life-history traits, large protected areas should be implemented in the Atlantic rainforest.

Table 1. List of reptile species recorded at the municipality of Vitória, state of Espírito Santo, Brazil, and respective specific areas of occurrence. Numbers corresponds to: 1) Parque Estadual da Fonte Grande; 2) Reserva Ecológica Municipal Restinga de Camburi; 3) Parque Botânico da Vale do Rio Doce; 4) Forest owned by Vale; 5) Parque da Pedra da Cebola; 6) campus of the Universidade Federal do Espírito Santo; 7) Other regions within the urban area of Vitória. Voucher Specimen deposited in Institutional collections or source of the record (i.e. record in the literature or personal record of authors) are provided for each species. Red List: Species included in some category of IUCN, Brazilian, Espírito Santo and CITES lists, except not listed or species as Least Concern. NT – Near Threatened; VU – Vulnerable; EN – Endangered; CR – Critically Endangered.
*Specimen collected in its surroundings; ** No locality specified.

TAXON	Place of occurrence at Vitória	Red List				Voucher specimen or source
		IUCN	Brazil	ES	CITES	
REPTILIA						
SQUAMATA						
Amphisbaenidae						
Amphisbaena alba Linnaeus, 1758	2					MBML 2595-96
Amphisbaena microcephala (Wagler, 1824)	2, 7					MBML 1886, 2324-25, 2359-2455
Amphisbaena nigricauda Gans, 1966	2					MBML 2340
Anguidae						
Ophiodes striatus (Spix, 182)	2					MBML 2658-60
Gekkonidae						
Hemidactylus mabouia (Moreau de Jonnès, 1818)	1*, 2, 5, 7					MBML 2673-84, 2726
Gymnophthalmidae						
Leposoma scincoides Spix, 1825	1					MNRJ 20087
Phyllodactylidae						
Gymnodactylus darwinii (Gray, 1845)	2					MBML 2661
Polychrotidae						
Polychrus marmoratus (Linnaeus, 1758)	1, 7					MBML 547
Scincidae						
Mabuya agilis (Raddi, 1823)	2					MBML 2341-43, 2673-84
Mabuya macrorhyncha Hoge, 1947	2					MBML 2666
Teiidae						
Ameiva ameiva (Linnaeus, 1758)	2					MBML 2662
Cnemidophorus nativo Rocha, Bergallo and Peccinini-Seale, 1997	2, 7		VU	VU		MBML 2344-58
Tupinambis merianae (Duméril and Bibron, 1839)					II	MBML 1722, 1745, 2657
Tropiduridae						
Tropidurus torquatus (Wied, 1820)	1, 2, 6, 7					MBML 1746, 2043, 2046, 2685-89

Table 1. ***Continued.***

TAXON	Place of occurrence at Vitória	Red List				Voucher specimen or source
		IUCN	Brazil	ES	CITES	
Boidae						
Boa constrictor Linnaeus, 1758	1, 2, 7				II	MBML 2207, 2217-20, 2690-93; MNRJ 9565
Corallus hortulanus (Linnaeus, 1758)	1, 7					MBML 1840, 1931, IBSP 10317
Colubridae						
Chironius exoletus (Linnaeus, 1758)	1					MCNR 2758
Chironius cf. *flavolineatus* (Boettger, 1885)	2					MBML 1868
Chironius foveatus Bailey, 1955	1					MCNR 2754
Drymoluber dichrous (Peters, 1863)	**					MNRJ 4858; Vrcibradic (2007)
Mastigodryas bifossatus (Raddi, 1820)	1					MCNR 2755
Oxybelis aeneus (Wagler, 1824)	1, 2					MBML 894, 2212-14, 2644-47
Dipsadidae						
Dipsas albifrons (Sauvage, 1884)	1					MZUFV 1575
Helicops carinicaudus (Wied, 1825)	7					MBML 651-63, 2339
Leptodeira annulata (Linnaeus, 1758)	**					IBSP 47503
Liophis miliaris (Linnaeus, 1758)	7					ZUFRJ 1785
Liophis poecilogyrus (Wied, 1825)	1*, 7					MBML 1795-1797, 1800, 1901, IBSP 48838-39, 51858-59
Oxyrhopus petola (Linnaeus, 1758)	1, 2*, 7					MBML 1864, 1889, 1896, 2211, 2650-52, MCNR 2756
Philodryas olfersii (Lichtenstein, 1823)	1					MCNR 2757, MBML 2619-2629, 2640, 2642-43
Pseudoboa nigra (Duméril, Bibron and Duméril, 1854)	1, 2					MCNR 1572-73 MBML 2630-35
Thamnodynastes nattereri (Mikan, 1828)	1					IBSP 19838-41, 47502
Tropidodryas serra (Schlegel, 1837)	**					IBSP 19854
Xenodon rabdocephalus (Wied, 1824)	**					IBSP 51857
Elapidae						
Micrurus corallinus (Merrem, 1820)	1, 1*, 2					MBML 1723-24, 1854, 2208-10, 2653-56
Leptotyphlopidae						
Tricheilostoma salgueiroi (Amaral, 1955)	1					MZUFV 1574
Typhlopidae						
Typhlops brongersmianus Vanzolini, 1976	2					MBML 2326-38
Viperidae						
Bothriopsis bilineata (Wied, 1825)	**				VU	IBSP 10596-98, 10613-16, 10695-96, 16642
Bothropoides jararaca (Wied, 1824)	1, 2, 4					MBML 1916, 1917, 2206, 2215-16; IBSP 27509, 49651, 51251
Bothrops jararacussu Lacerda, 1884	**					IBSP 49869
Bothrops leucurus Wagler, 1824	**					IBSP 10599-601, 10687-94
Lachesis muta (Linnaeus, 1766)	**				VU	IBSP 17957
TESTUDINES						
Chelidae						
Acanthochelys radiolata (Mikan, 1820)	1*		NT			MNRJ 18520

Table 1. ***Continued.***

TAXON	Place of occurrence at Vitória	Red List				Voucher specimen or source
		IUCN	Brazil	ES	CITES	
Cheloniidae						
Caretta caretta (Linnaeus, 1758)	7	VU	EN	VU		Almeida *et al.* (2007)
Chelonia mydas (Linnaeus, 1758)	7	VU	EN	VU		Almeida *et al.* (2007)
Eretmochelys imbricata (Linnaeus, 1766)	7	EN	EN	EN		Almeida *et al.* (2007)
Lepidochelys olivacea (Eschscholtz, 1829)	7	EN	EN	EN		Almeida *et al.* (2007)
Dermochelyidae						
Dermochelys coriacea (Linnaeus, 1766)	7	CR	CR	CR	I	Lopez-Mendilaharsu and Rocha (2009)
Emydidae						
Trachemys scripta elegans (Wied, 1839)	5					Field record, TSS
Testudinidae						
Chelonoidis carbonaria (Spix, 1824)	5				II	Field record, TSS
Chelonoidis denticulata (Linnaeus, 1766)	5				II	Field record, TSS
CROCODYLIA						
Alligatoridae						
Caiman latirostris (Daudin, 1802)	3, 4				I	Field record, TSS and Pedro R. Paz

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